

**REMARKS**

Claims 36, 38-40, and 42-44 are pending. Claims 36 and 38-44 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Application Publication No. JP 09-165681 ("Sagusa") in view of U.S. Patent No. 5,800,618 ("Niori"). Office Action, page 2. Applicants respectfully disagree and traverse this rejection for at least the following reasons.

Independent claim 36 is directed to an electrode having a base metal, a heater, and a pair of core metal plates and recites, amongst other features, "the core metal plates being arranged above and below the heater, respectively" and "the heater and the core metal plates [ ] cast in the base metal such that the core metal plates are **entirely surrounded by the base metal and are entirely in metal-to-metal contact with the base metal....**" Claim 36, ll. 6-9 (emphasis added).

And independent claim 44, which is directed to a plasma processing apparatus includes, *inter alia*,

a processing vessel;  
the electrode as defined in claim 36; and  
a high frequency power source adapted to apply a high frequency voltage to the electrode.

For at least the reason that the combination of Sagusa and Niori fail to teach each feature of the claims, Applicant respectfully traverses.

The Examiner asserts that Sagusa discloses a "base metal ('aluminum rolled stock 13' [0011]) made of a cast metal...[and] a heater ('sheath heater 11'; [0011]...) embedded in the base metal...and arranged on a plane." Office Action at page 2. The

Examiner admits that Sagusa fails to disclose the pair of core metal plates as recited in claim 36. Nonetheless, the Examiner attempts to remedy the deficient teachings of Sagusa by citing to Niori.

To make out a *prima facie* case of obviousness, the Examiner must demonstrate (1) that Sagusa, as proposed to be repeatedly modified by the teachings of Niori, discloses or suggests each and every feature recited in the claim, (2) that there is a reasonable probability of success of such modifications, and (3) the existence of an apparent reason to make such modifications so as to predictably yield the claimed invention. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 2007 WL 1237837 (Apr. 30, 2007); M.P.E.P. § 2143 (8th ed., rev. 5, Aug. 2006). It bears emphasizing that each of these requirements must be found in the prior art — not based on Applicant's own disclosure. *See id.*

The Examiner fails to satisfy the first prong required to render a claim obvious. Specifically, the Office has failed to demonstrate that the applied references disclose or suggest a base metal arranged relative to the heater and core metal plates as recited in independent claim 36. For instance, the combination of Sagusa and Niori fails to teach or suggest both a material corresponding to the base metal and that base material arranged as recited in independent claim 36. Sagusa, which the Examiner apparently relies upon for teaching a base metal, actually discloses an aluminum rolled stock covering the exterior of a structure. That structure, as depicted in Drawing 1, is surrounded by the outer layer of the rolled aluminum stock. Assuming *arguendo* that a skilled artisan would combine the rolled aluminum stock of Sagusa with the device of Niori, each feature of independent claim 36 arranged as recited in the claim is not found

corresponds to the base metal recited in claim 36. The electrode recited in independent claim 36 requires that the pair of core metal plates be “entirely surrounded by the base metal and...entirely in metal-to-metal contact with the base metal....” Although the Examiner submits that Sagusa’s disclosure of a rolled aluminum stock corresponds to the base metal of claim 36, Applicant respectfully disagrees.

According to Sagusa, its rolled aluminum material surrounds the structure contained therein. Specifically, “[t]he **circumference of the plate 12** of the aluminum cordierite complex which embedded the sheath heater 11 as the whole **is covered with the aluminum rolled stock 13 ....**” Paragraph [0011] (emphasis added). Assuming that the skilled artisan would combine the aluminum rolled stock of Sagusa with the device of Niori, the resulting structure would fail to satisfy each element of independent claim 36. As the aluminum rolled stock is an exterior layer, or as described by Sagusa “a covering,” that material cannot entirely surround any core metal plate contained in the interior structure. Even assuming that the core metal plates are positioned so that one face is exposed to the exterior covering, each surface of the plate could not be in contact with the aluminum rolled stock. Thus, the exterior rolled aluminum stock layer of Sagusa is physically incapable of entirely surrounding any core metal plates contained therein.

Moreover, Niori fails to remedy the deficiencies of Sagusa. For example, the Examiner relies upon Niori solely to allegedly disclose the existence of one core metal plate and an electrode. See Office Action at page 4. Modifying the Sagusa structure with the teachings of Niori would thus fail to overcome the shortcomings of Sagusa. Thus, the combination of Sagusa and Niori fails to teach at least the element wherein

“the core metal plates are entirely surrounded by the base metal and are entirely in metal-to-metal contact with the base metal...” Claim 36, ll. 7-9.

Additionally, the Office continues to mischaracterize the term “cast” and improperly asserts that the rolled aluminum stock of Sagusa is a cast material. Notwithstanding that the rolled aluminum stock cannot be the base metal because Sagusa and Niori fail to teach that material entirely surrounds the pair of core metal plates, the aluminum rolled stock cannot properly be considered a cast metal as required by claim 36.

The Examiner maintains that the broadest reasonable interpretation for the term “cast” is a dictionary definition- “to dispose or arrange into parts or into a suitable form or order.” Office Action at page 3 (citing Merriam-Webster’s Collegiate Dictionary, 10th ed. p. 178). But Applicant notes that an interpretation of a claim term cannot be reasonable when the specification is not taken into consideration. Indeed, in view of the Patent Office’s procedures and current jurisprudence, the specification must be taken into account when the Office interprets claims. See MPEP §2111. For instance, “[d]uring patent examination, the pending claims must be ‘given their broadest reasonable interpretation consistent with the specification.’” *Id.* Moreover, as noted by the Federal Circuit, this reasonable claim construction is that construed by one of ordinary skill in the art. See *Philips v. AWH Corp.* 415, F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) (citing *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Applicant asserts that the Office’s proffered definition has no apparent connection to the specification nor to an ordinary skilled artisan in the metallurgical arts.

Indeed the term “cast” is well-known in the field of metallurgical arts. Consistent with the specification, the term “cast” generally refers to a product or process in which the product is formed by pouring or injecting, for instance, a liquid material in a mold to form a predetermined shape.

But the Office ignores both the specification and the meaning of the term within the metallurgical arts by continuing to improperly and unreasonably interpret the term “cast” as discussed above. This arbitrary dictionary definition is in no way consistent with the metallurgical technical meaning of the term “cast” and Applicant requests that the Office reconsider its interpretation. Thus, when the term “cast” is interpreted consistent with its use within the metallurgical arts, the rolled aluminum stock of Sagusa cannot properly be considered a base metal. It clearly is not formed by casting in a mold. Instead, as the term suggests, the aluminum stock is rolled to cover the Sagusa device. Thus, at least for the reason that the combination of Sagusa and Niori fails to suggest a “base metal formed of a cast metal,” that combination cannot render claims 36 and 44 obvious.

Finally, the Office improperly concludes that Niori suggests a multiplicity of metal plates, in this instance, a pair of core metal plates. The Office admits that Sagusa fails to teach the core metal plates and apparently relies on Niori to supposedly provide that suggestion. Niori, however, not only fails to disclose a pair of core metal plates, it fails to disclose the arrangement of each plate with respect to a heater.

Claim 36 provides for a specific arrangement of the plates with respect to the heater:

a pair of core metal plates embedded in the base metal and **arranged substantially parallel to the plane and adjacent to the heater**, the core metal plates being **arranged above and below** the heater, respectively;

Claim 36, ll. 4-6. Sagusa in view of Niori fails to suggest any particular arrangement of the core metal plates relative to the heater. Indeed, as Sagusa fails to mention any type of core metal plate, the Office would have to rely on Niori to remedy that shortcoming. But Niori falls short and fails to mention any teaching of locations of core metal plates. The only teaching of an arrangement where one core metal plate was located above the heater while the other core metal plate was located below is found in Applicant's own disclosure. Consequently, the Office's assertion that Niori's teachings of a single plate implies a multiplicity of plates ignores other elements of claim 36, namely the spatial relationship between the two core metal plates and the heater.

As each element must be disclosed or suggested in the applied references, the failure of Sagusa and Niori to teach or suggest that the core metal plates are "arranged above and below the heater" and "arranged substantially parallel to the plane [of the heater]" precludes their being cited as a basis for an obviousness rejection.

Therefore, the combination of Sagusa and Niori fail to teach or suggest each and every element of claims 36, 38-40 and 42-44. Thus, the §103(a) rejection of these claims as unpatentable over Sagusa in view of Niori is improper and should be withdrawn.

Applicant respectfully points out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the consideration of these remarks would allow the Applicant

to reply to the final rejections and place the application in condition for allowance.

Applicant respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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